STATE OF OHIO
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL SURVEY
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SURFICIAL GEOLOGY OF THE CHILLICOTHE EAST QUADRANGLE, OHIO

Digital Map Series SG-4A
Chillicothe East
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by
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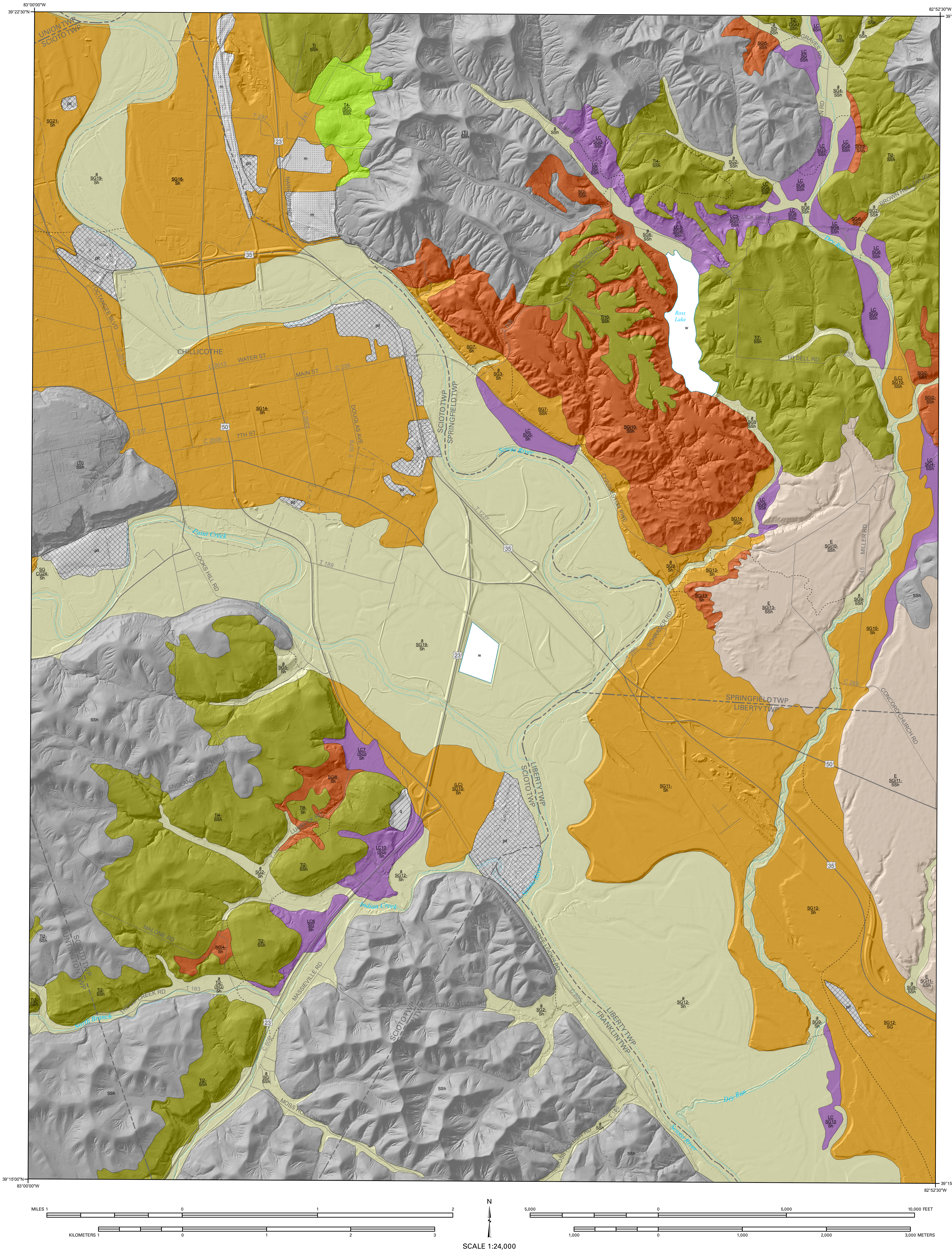

MAPPING CONVENTIONS

This map provides a three-dimensional framework of the study area's surficial geology and depicts four important aspects of surficial geology:

1. Geologic deposits, indicated by letters that represent the major lithologies.
2. Thicknesses of the individual deposits, indicated by numbers and modifiers.
3. Lateral extents of the deposits, indicated by map-unit area boundaries (solid and dashed lines).
4. Vertical sequence of deposits, by the stack of symbols within each map-unit area.

Letters represent geologic deposits (lithologic units) and are described in detail below. Lithologic units may be a single lithology, such as sand (S) or clay (C), or a combination of related lithologies that are found in specific depositional environments, such as sand-and-gravel (SG) or ice-contact (IC) deposits. The bottom symbol in each stack indicates the bedrock lithologies that underlie the surficial deposits. The detailed lithologic unit descriptions below summarize:

1. Geologic characteristics, such as range of textures, bedding, and age.
2. Engineering properties or concerns attributed to the unit.
3. Depositional environments.
4. Geomorphology or geomorphic locations.
5. Geographic locations within the map area, if pertinent.

Numbers (without modifiers) that follow the lithology designators represent the average thickness of a lithologic unit in tens of feet (for example, *3* represents 30 feet [ft]). If no number is present, the average thickness is implied as *1* (10 ft). These unmodified numbers correspond to a thickness range centered on the specified value but may vary ±50 percent. For example, *T4* indicates an average thickness of till in a map-unit area is 40 ft, but that thickness may vary from 20 to 60 ft.

Modifiers provide additional thickness and distribution information:

1. Parentheses indicate that a unit has a patchy or discontinuous distribution and is missing in portions of that map-unit area. For example, *(T2)* indicates that till with an average thickness of 20 ft is present in only part of that map-unit area.
2. A negative sign (-) following a number indicates the maximum thickness for that unit in an area such as a buried valley or ridge. Thickness decreases from the specified value, commonly near the center of the map-unit area, to the thickness of the same lithologic unit and vertical position specified in an adjacent map-unit area. For example, a *SG9-* map-unit area adjacent to a *SG3* area indicates a sand-and-gravel unit having a maximum thickness of 90 ft that thins to an average of 30 ft at the edge of the map-unit area. If the material is not present in an adjacent area, it decreases to zero at that boundary.

The small scale of this reconnaissance map generalizes the great local variability within surficial deposits. That variability is explained in the lithologic unit descriptions and by the use of thickness ranges. Some areas and lithologies are too small to delineate at 1:24,000 scale and have been included in adjacent areas. This map should serve only as a regional predictive guide to the area's surficial geology and not as a replacement for subsurface borings and geophysical studies required for site-specific characterizations.

UNIT DESCRIPTIONS

w	Water. Large modern lakes and reservoirs.
m	Made land. Large cut-and-fill areas.
pit	Sand-and-gravel pit.
q	Quarry.
a	Alluvium (Holocene). Found within floodplains of modern streams.
E	Eolian silt (loess) and fine sand, unspecified age. Up to 10 feet thick. Mapped where thickness and extent significant.
LC	Clay and silt (Wisconsinan). Massive to laminated; may contain thin, interbedded, fine sand and minor gravel. Deposited in lakebeds at the ice margin.
SG	Sand and gravel (Wisconsinan). Stratified sand and gravel with thin, discontinuous layers of silt and clay. Deposited as valley trains and outwash plains.
SGi	Sand and gravel (Illinoian). Similar to SG above but more deeply weathered, leached, and dissected.
T	Loam till (Wisconsinan). Unsorted mix of silt, sand, gravel, and boulders; variable carbonate content; fractures common. May contain silt, sand, and gravel lenses.
Ti	Loam till (Illinoian). Deeply weathered, leached, and dissected. Overlain by up to 4 feet of loess where not eroded. Till may contain silt, sand, and gravel lenses. Deposited directly from ice.
SSh	Sandstone and shale (Mississippian). Interbedded shale, siltstone, and sandstone and associated colluvium, with common vertical and horizontal changes.
────	Boundary between map-unit areas having **different** uppermost, continuous lithologies or significant bedrock lithology change; underlying lithologies may or may not differ.
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Note: Boundary types reflect the relationships among uppermost continuous lithologies only, not patchy, discontinuous lithologies (in parentheses).

Location of Chillicothe East 1:24,000 quadrangle in Ohio.

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Basemap derived from various State of Ohio datasets
Projection is Ohio coordinate system, south zone
North American Datum 1983

Great Lakes
GEOLOGIC MAPPING COALITION